

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

28 - 61. (Cancelled)

62. (New) A method of screening for a substance which activates or inhibits activity of Aster Associated Protein (ASAP) or an ortholog thereof, said substance being selected from the group consisting of a human protein of sequence SEQ ID NO: 1 and proteins having sequences which exhibit at least 80% identity or at least 90% similarity, with an entire sequence SEQ ID NO: 1,

wherein intracellular over-expression of said ASAP or an ortholog thereof disturbs organization of a mitotic spindle,

wherein said method comprises the steps of:

- a) contacting, in a first step, cells of a biological sample expressing said ASAP or an ortholog thereof, with a substance to be tested;
- b) measuring in a second step, the effect of said substance on mitotic spindle organization or the rate of induction of aberrant and abortive mitoses;
- c) comparing, in a third step, the measured effect of said substance to a previously measured effect in an absence of said substance to determine a relative effect of said substance; and
- d) selecting, in a fourth step, a substance which activates or inhibits said activity.

63. (New) The method of claim 62, wherein the ASAP protein which is expressed is murine ASAP (SEQ ID NO: 46).

64. (New) The method of claim 62, wherein the cells of the biological sample expressing the ASAP protein are transformed host cells over-expressing a recombinant ASAP protein.
65. (New) The method of claim 64, wherein the recombinant ASAP protein is an ASAP protein fused with a fluorescent protein.
66. (New) The method of claim 61, wherein the substance is a protein having at least 90% identity or at least 95% similarity with an entire sequence SEQ ID NO: 1.
67. (New) The method of claim 61, wherein the substance is a protein having a molecular weight of between 60 and 100kDa.
68. (New) The method of claim 67, wherein the protein is associated with centrosomes.
69. (New) The method of claim 62, wherein the protein is colocalized, by immunofluorescence, with  $\alpha$ -tubulin of microtubules of the mitotic spindle.
70. (New) The method of claim 67, wherein the protein has a molecular weight of 65 and 80 kDa.